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UNIVERSITY OF CALIFORNIA PUBLICATIONS
Bulletin of the Department of Geology
Vol. 3, No. 21, pp. 419-421. ANDREW C. LAWSON, Editor

A NEW MARINE REPTILE
FROM THE
TRIASSIC OF CALIFORNIA

BY

JOHN C. MERRIAM

BERKELEY
THE UNIVERSITY PRESS
OCTOBER, 1904

PRICE 5 CENTS

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In the collections of marine Triassic reptiles at the University of California there are a number of specimens representing a heretofore unknown form of swimming reptile. In advance of a more complete discussion of the structure and affinities of this group, the following description of the type specimen is presented.

Thalattosaurus alexandrae, new gen. & sp.

FIGURE 1.

Cranium elongated, with slender snout. External nares separated and not far in front of the orbits. Dentigerous portion of the premaxillaries elongated but shorter than the maxillaries. Premaxillaries and maxillaries sculptured on the external surface.

Vomers with two rows of flat, button-like teeth. Pterygoids with four or more rows of curved, conical teeth. Palatines not known to be dentigerous. Teeth of the premaxillaries and of the anterior end of dentary slender conical. Posterior part of dentary and probably of maxillaries with button-like, flat or only slightly tuberculate teeth.

Vertebrae amphicoelous, neural spines slender. Dorsal ribs single-headed. Coracoid reniform, elongated antero-posteriorly. Scapula narrow. Humerus short, much expanded distally. Radius and ulna about half the length of the humerus; radius with median constriction. Pelvic arch robust, inferior elements not plate-like.

The type specimen (No. $\frac{1013}{9085}$ Pal. Mus. Univ. Cal.) was found in the Trachyceras beds of the Hosselkus limestone in the Upper Triassic of Shasta County. It includes the anterior two-thirds of the skull and a portion of the temporal region; also parts of over thirty vertebrae, numerous fragmentary ribs, the principal elements of the pectoral and pelvic arches and a considerable portion of an anterior limb.

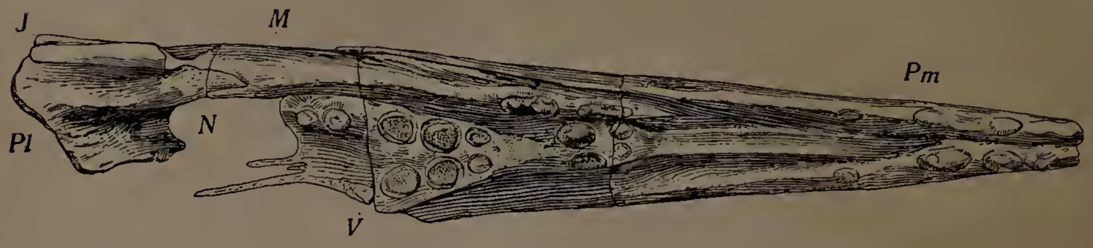

Fig. 1. *Thalattosaurus alexandrae.* Inferior side of the anterior portion of the cranium. *M*, maxillary; *Pm*, premaxillary; *V*, vomer; *Pl*, palatine; *J*, jugal; *N*, narial opening. × ½.

This species is named in honor of Miss A. M. Alexander, who has not only contributed generously to the financial support of the work on the vertebrates of the marine Triassic but was herself the discoverer of the type specimen furnishing the largest part of our information concerning the group.

In its fundamental outlines, the skeletal structure in *Thalattosaurus* is strongly suggestive of the Rhynchocephalia, but like many of the so-called rhynchocephalian groups it differs so far from the typical forms represented by *Sphenodon*, *Homaeosaurus*, etc., that it can not be included in the same ordinal division. It is likewise so different from all of the other described reptilian families and orders that it must be given an independent position. The family name *Thalattosauridae* and the ordinal name *Thalattosauria* are therefore used to express its position in the scheme of classification.

Recently a number of groups possessing rhynchocephalian characters have been tentatively brought together as orders in a superorder, Diaptosauria, by Osborn.* Although diaptosaurian in one sense simply spells *primitive*, this classification serves to emphasize the distinct kinship certainly shown by many of these

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* H. F. Osborn. The Reptilian Subclasses Diapsida and Synapsida and the Early History of the Diaptosauria. Mem. Am. Mus. Nat. Hist., Vol. 1, Part 8, 1903.

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forms. For the present the Thalattosauria may be placed in the superorder Diaptosauria, though it is doubtful whether it will be retained in that division or even whether the Diaptosauria can hold together when the various forms included in it become better known. With increased knowledge of the Triassic reptiles, it will naturally become increasingly difficult to determine whether or not some of the orders classed with the Diaptosauria are more deserving of a position in that group than, for example, the rhynchocephaloid Parasuchia having an independent position.

Inside the Diaptosauria the closest affinities of the Thalattosauria are with the Proganosauria and Choristodera. From both groups they differ more widely than these two differ from each other. In many respects, particularly in limb structure, the Thalattosauria represent more highly specialized aquatic forms than the other two orders.

Outside of the Diaptosauria there are noticable resemblances to the Parasuchia and to the Lacertilians. The common characters are, however, almost without exception, primitive or rhynchocephalian characters which we find persisting in the Parasuchia and Squamata.

Some of the most interesting points of resemblance to known forms shown by *Thalattosaurus* are found in its similarity in parts of the skull to *Proterosuchus* Broom, from the Karoo Beds. This form is referred to by Broom as " . . . a primitive Rhynchocephalian which shows a considerable degree of specialization along the line which gave rise to the early Crocodiles and Dinosaurs." Here as in other groups compared, the skull structure shows important differences. Judging from these differences and from the occurrence of *Proterosuchus*, we may expect that the limbs in that form will prove to have a structure very different from that in *Thalattosaurus*, and will tend rather toward the crocodilian type. While showing noteworthy affinities, it would be impossible to bring *Proterosuchus* and *Thalattosaurus* nearer to each other than related orders of the Diaptosauria could come.

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